

REMARKS

The Office Action mailed March 26, 2003, has been received and reviewed. Claims 1 through 26 are currently pending in the application. Claims 1 through 26 stand rejected. Applicants have amended claims 1, 7, 11, and 19, and respectfully request reconsideration of the application as amended herein.

Information Disclosure Statement(s)

Applicants note the filing of an Information Disclosure Statement herein on August 27, 2001. Although a copy of page 1 of the PTO-1449, as initialed by the Examiner, was sent to Applicants' attorney with the outstanding office action, no copy of page 2 of the August 27, 2001 PTO-1449 was returned with the outstanding Office Action. Applicants respectfully request that all information cited on the PTO-1449 (which is the same as that of record to that date in the parent application hereto) be made of record herein, and respectfully request a copy of page 2 of the August 27, 2001 PTO-1449, as initialed by the Examiner, be included with the next office action.

Drawings

FIGS. 18 through 23 were objected to as requiring a "Prior Art" designation. Applicants submit herewith, proposed corrections to FIGS. 18 through 23 of the drawings. Specifically, FIGS. 18 through 23 have been revised to designate the drawings as prior art. Applicants respectfully request approval of the corrections to the drawings. Applicants also submit herewith corrected formal drawings, under cover of a separate Transmittal of Formal Drawings. Applicants respectfully request approval of the corrected formal drawings.

35 U.S.C. § 112 Claim Rejections

Claims 16 and 24 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had

possession of the claimed invention. Applicants respectfully traverse this rejection, as hereinafter set forth.

“As long as the specification discloses at least one method for making and using the claimed invention that bears reasonable correlation to the entire scope of the claim, then the enablement requirement of 35 U.S.C. 112 is satisfied. *In re Fischer*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970).” (MPEP §2164.01(b)). “If a statement of utility in the specification contains within it a connotation of how to use, and/or the art recognizes that standard modes of administration are known and contemplated, 35 U.S.C. 112 is satisfied. *In re Johnson*, 282 F.2d 370, 373, 127 USPQ 216, 219 (CCPA 1960); *In re Hitchings*, 342 F.2d 80, 87, 144 USPQ 637, 643 (CCPA 1965).” (MPEP §2164.01(c)).

Claims 16 and 24 recite field emission arrays that further comprise redeposition material adjacent at least a portion of said periphery. Applicants respectfully submit that the specification does disclose at least one method for making and using a field emission array having redeposition material present. The specification states:

As shown in FIG 4, during the facet etch, redeposition material 110, which includes the material from the etched vertical column 106, may collect adjacent substantially vertical sidewall 107 of field emission tip 108.
(Paragraph 31 of the as-filed specification)

As also shown in FIG. 9, a redeposition material 116 resulting from the facet etch, comprising a mixture of material from the vertical column 106 and the low work function material 112, may, during the facet etch, collect in corners 118 at a junction between the substantially perpendicular portion 107 of the periphery of field emission tips 108 and substrate 102.

(Paragraph 33 of the as-filed specification)

Another embodiment of the invention, illustrated in FIGS. 10-16, includes a sacrificial layer 122 under the redeposition material 126, which sacrificial layer 122 facilitates removal of the redeposition material. (Paragraph 34 of the as-filed specification). The specification additionally states, “such deposition material 126 would be difficult to remove if deposited directly on the vertical column 106 and the base substrate 102 surfaces.” (Paragraph 34 of the as-filed specification).

Therefore, the specification describes a field emission array having redeposition material present in such a way as to enable one skilled in the art to which it pertains to make the invention. Accordingly, withdrawal of the 35 U.S.C. § 112, first paragraph, rejection of claims 16 and 24 is respectfully requested.

35 U.S.C. § 102(a) Anticipation Rejections

Anticipation Rejection Based on U.S. Patent No 6,201,342 to Hobart et al.

Claims 1 through 18 stand rejected under 35 U.S.C. § 102(a) as being anticipated by Hobart et al. (U.S. Patent No. 6,201,342). Applicants respectfully traverse this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Hobart discloses a field emitter array including a plurality of semiconducting nanomesas 14 disposed on a semiconducting substrate, microscopic three-dimensional monocrystalline emitting regions or tips on the nanomesas of a semiconducting material each terminating in an apex, and a gate around the nanomesas. The tip, which may or may not be of the same material as the nanomesa, is disposed on the nanomesa by epitaxial self-assembled growth thereof by vapor phase epitaxial growth to form an atomically sharp apex. (Col. 6, lines 40-43)

Claim 1, as amended herein, recites a field emission tip comprising a structure including a periphery with an at least substantially vertical sidewall portion and an inclined sidewall portion with no discernable boundary between the substantially vertical sidewall portion and the inclined sidewall portion.

Hobart does not disclose a field emission tip having no discernable boundary between a substantially vertical sidewall portion and an inclined sidewall portion. Rather, Hobart discloses an emitter tip having nanomesas and a sharp apex with a boundary therebetween. The tip is

grown by self-assembly on the top surface 26 of the nanomesa. Top surface 26 is a boundary between the sidewall of nanomesa 14 and planes 113 and 111. (See FIG 4).

Therefore, Hobart does not inherently or expressly describe each and every element of claim 1, as amended herein. Accordingly, it is respectfully submitted that claim 1 is not anticipated by Hobart under 35 U.S.C. § 102 (a).

Claims 2 through 6 are each allowable, among other reasons, as depending from claim 1 which should be allowed.

Claim 7, as amended herein, recites a field emission tip comprising a structure including a periphery with an at least substantially vertical portion and an inclined sidewall portion with no discernable boundary between the substantially vertical sidewall portion and the inclined sidewall portion.

Hobart does not disclose a field emission tip having no discernable boundary between a substantially vertical sidewall portion and an inclined sidewall portion. Therefore, Hobart does not inherently or expressly describe each and every element of claim 7, as amended herein. Accordingly, it is respectfully submitted that claim 7 is not anticipated by Hobart under 35 U.S.C. § 102 (a).

Claims 8 through 10 are each allowable, among other reasons, as depending from claim 1 which should be allowed.

Claim 11, as amended herein, recites a field emission array including at least one substantially pointed tip including a periphery. At least a first portion of the periphery is oriented substantially perpendicular relative to a substrate. At least a second portion of the periphery is oriented at an angle relative to the substrate. There is no discernable boundary between the first and second portion of the periphery.

Hobart does not disclose a substantially pointed tip having a first portion of the periphery oriented substantially perpendicular relative to a substrate and at least a second portion of the periphery oriented at an angle relative to the substrate with no discernable boundary between the first and second portion of the periphery. Therefore, Hobart does not inherently or expressly

describe each and every element of claim 11, as amended herein. Accordingly, it is respectfully submitted that claim 11 is not anticipated by Hobart under 35 U.S.C. § 102 (a).

Claims 12 through 18 are each allowable, among other reasons, as depending from claim 1 which should be allowed.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Patent No. 6,201,342 to Hobart et al. in View of Applicants' Admission of Prior Art

Claims 19 through 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hobart et al. (U.S. Patent No. 6,201,342) in view of Applicants' admission of prior art. Applicants respectfully traverse this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

Claim 19, as amended herein, recites a field emission display including at least one substantially pointed tip including a periphery. At least a first portion of the periphery is oriented substantially perpendicular relative to a substrate. At least a second portion of the periphery is oriented at an angle relative to the substrate. There is no discernable boundary between the first and second portion of the periphery.

Neither Hobart nor the admitted prior art, alone or in combination, teaches or suggests each and every element of claim 19, as amended herein. Specifically, neither reference teaches

a substantially pointed tip having a first portion of the periphery oriented substantially perpendicular relative to a substrate and at least a second portion of the periphery oriented at an angle relative to the substrate with no discernable boundary between the first and second portion of the periphery.

Therefore, it is respectfully submitted that claim 19, as amended herein, is not rendered obvious under 35 U.S.C. § 102 (a) by the combination of Hobart and the admitted prior art.

Claims 20 through 26 are each allowable, among other reasons, as depending from claim 19 which should be allowed.

CONCLUSION

Claims 1 through 26 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,



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